

TECHNICAL DATA SHEET

Revision: Rev. 02

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1. PRODUCT AND COMPANY INFORMATION

Product Name: Tetrachloroethylene

CAS No: 127-18-4

EC No (EINECS): 204-825-9

Synonyms: Perchloroethylene, PCE, Ethylene tetrachloride

Molecular Formula: C₂Cl₄

Molecular Weight: 165.83

Grade: Dry Cleaning Grade / Industrial Degreasing Grade / Catalyst Grade

Manufacturer / Supplier: Hefei TNJ Chemical Industry Co.,Ltd.

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Zhengwu District,Hefei, Anhui 230022, China

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Recommended use: Dry cleaning solvent, metal vapour degreasing, organic synthesis intermediate, high purity solvent for catalytic reaction system.

Restrictions of use: Not for food, pharmaceutical, drinking- water related applications.

2. PRODUCT DESCRIPTION

Tetrachloroethylene is a colourless, clear chlorinated liquid with mild chloroform - like odour. Non-flammable under normal ambient conditions. Excellent solvency for grease, oil, wax, tar, rubber and many organic polymers. Slightly soluble in water, fully miscible with alcohols, ethers, hydrocarbons, halogenated solvents.

Dry Cleaning Grade: Formulated with stabilizers to suppress hydrolysis & decomposition; optimized for textile dry-cleaning circulation systems.

Industrial Degreasing Grade: Moderate stabilizer content; for vapour- phase degreasing of metal components.

Catalyst Reaction Grade: Stabilizer-free; ultra-low moisture, peroxides and trace metal impurities. Stabilizers, peroxides and heavy metals may cause catalyst poisoning; suitable for homogeneous & heterogeneous catalytic processes.

3. GENERAL PHYSICO- CHEMICAL PROPERTIES

Parameter	Typical Value
Melting point	- 22 °C
Boiling point (101.3 kPa)	121 °C
Flash point	Non- flammable
Auto- ignition temperature	>650 °C
Vapour density (air=1)	5.83

Parameter	Typical Value
Vapour pressure @20 °C	1.9 kPa
Water solubility @25 °C	0.015 g /100 mL (very slightly soluble)
Solubility in organics	Fully miscible with most organic solvents
Stability	Stable under cool dark sealed storage. Thermal / UV- light decomposition yields HCl and phosgene. Reacts violently with fine active metals (Al, Zn powder), strong oxidizers and strong bases.

Note: Above data are typical values, not guaranteed specifications. Catalyst grade is specially for catalytic reaction system, stabilizer-free.

4. TYPICAL TECHNICAL SPECIFICATIONS

Item	Dry- Cleaning Grade	Degreasing Industrial Grade	Catalyst- Reaction Grade	Unit	Test Method
Appearance	Colorless clear liquid	Colorless clear liquid	Colorless clear liquid	-	Visual inspection
Colour (Pt- Co)	≤15	≤15	≤10	APHA	ASTM D1209
Purity (GC- FID)	≥99.90	≥99.90	≥99.99	%	GC- FID
Moisture	≤50	≤50	≤10	ppm	Karl- Fischer Titration
Non- volatile Residue	≤10	≤10	≤3	ppm	Gravimetric evaporation
Free Acid (as HCl)	≤5	≤5	≤1	ppm	Acid- base titration
Alkalinity (as NaOH)	≤30	≤30	≤5	ppm	Titration
Stabilizer Content	Low stabilizer	Low stabilizer	Stabilizer- free	ppm	GC
Peroxide Content	≤2	≤2	≤0.5	ppm	Iodometric titration
Total Metals (Fe,Cu,Zn,Al)	-	-	≤0.1	ppm	ICP- MS
Density ρ_{20}	1.620- 1.624	1.620- 1.624	1.621- 1.623	g/cm ³	ASTM D4052
Refractive Index n_D^{20}	1.504- 1.506	1.504- 1.506	1.504- 1.505	-	Refractometer
Free Chlorine	Pass	Pass	Pass	-	Qualitative titration

5. MAIN APPLICATION BY GRADE

Dry Cleaning Grade

- Professional textile dry- cleaning for natural fibre and synthetic fabrics; dissolves oil- based stains.

Industrial Degreasing Grade

- Vapour degreasing for precision metal parts; remove grease, cutting-oil, wax and polishing residues.
- Extraction solvent for oils & fats; auxiliary for organic synthesis.

Catalyst- Reaction Grade

- High purity inert reaction solvent for homogeneous and heterogeneous catalytic reactions.
- Strict control of stabilizer, peroxide and metallic impurities to prevent catalyst poisoning.
- Suitable for lab & pilot chemical synthesis.

6. PACKAGING

- Standard export drum: 300 kg net steel drum.
- Catalyst-Reaction Grade: Nitrogen-blanketed sealed steel drum.
- Bulk: ISO tank container.
- Package marking: Product name, grade identification, CAS No, UN No, batch number, production date, gross/net weight, GHS hazard label.

7. HANDLING PRACTICES

- Install sufficient local exhaust ventilation to control vapour concentration.
- Avoid inhalation of vapours, skin and eye contact.
- PPE recommendation: chemical-resistant gloves, safety goggles / face shield; organic-vapour respirator under high-vapour conditions.
- Keep away from heat, UV radiation, open light sources.
- Prevent contact with fine aluminium, zinc powder, strong oxidants and strong alkalis.
- No eating, drinking or smoking in working zone.

Catalyst-Reaction Grade special: Minimize opening frequency of drums; apply nitrogen blanketing during sampling and transfer.

8. STORAGE CONDITIONS

- Store in cool, dry, dark and well-ventilated warehouse. Keep drums tightly closed.
- Storage temperature: 10 ~ 25 °C. Protect from direct sunlight and heat sources.
- Segregate from active metals, oxidizing agents, strong bases and food- related goods.

Shelf-life:

- Dry-Cleaning / Degreasing Grade: 12 months under original sealed drums.
- Catalyst-Reaction Grade: 6 months under nitrogen- sealed original packaging; long-term storage is not advised.

9. TRANSPORT INFORMATION

UN-No: UN 1897

Proper shipping name: Tetrachloroethylene

Transport hazard class: Class 6.1 Toxic substance

Packing Group: III

Marine pollutant: Yes.

Remarks: IMDG / ADR compliant. Do not ship together with food, acids, oxidizing agents. Prevent drum leakage and high-temperature exposure during transit.

Catalyst grade: avoid prolonged sunshine exposure during transportation.

10. REGULATORY COMPLIANCE

- TSCA: Listed
- REACH SVHC: Check latest candidate list.
- HS- Code: 29032300

11. DISCLAIMER

The information given in this Technical Data Sheet is based on our present knowledge and experience. It describes our product with regard to typical properties, but does not constitute any guarantee of product performance. Users shall determine suitability for their own application and comply with local laws and environmental regulations. For catalyst-grade application, end-user must verify impurity level for own catalytic system.

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